IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

State of Oklahoma,	)	
Plaintiffs,	)	Case No.: 4:05-cv-00329-GKF-PJC
v.	)	
Tyson Foods, Inc., et. al.	)	
Defendants.	)	

DECLARATION OF DAVID CHAPMAN, M.S.

I, David Chapman, hereby state as follows:

1. I am a Principal with Stratus Consulting, Inc. My areas of qualification include environmental and resource economics, survey research, Oil Pollution Act and CERCLA damage assessment, benefit cost analysis, policy analysis, and program evaluation.

2. I received my Masters Degree in Natural Resource Economics from the University of California at Berkeley in 1985 and my undergraduate degree in Economics from the University of California at Irvine in 1983.

3. I have 25 years of experience in natural resource valuation and policy analysis, specializing in behavioral and welfare effects of environmental and natural resource impacts and federal and state environmental policy. I am experienced in the technical development and implementation of non-market valuation studies to measure the welfare effects of environmental contamination. I have coordinated the development and evaluation of federal and state environmental policies and assisted in the development of federal regulations. I have over 10 years of experience working in the federal

government conducting natural resource damage assessments ("NRDAs"), policy evaluation, and regulation development.

4. I am one of the authors of the State of Oklahoma's expert report on damages entitled "Natural Resource Damages Associated with Aesthetic and Ecosystem Injuries to Oklahoma's Illinois River System and Tenkiller Lake – Expert Report for State of Oklahoma, in Case No. 05-CV-0329-GKF-SAJ."

5. I have reviewed Defendants' Expert Report of William H. Desvousges, Ph.D. and Gordon C. Rausser, Ph.D. dated March 31, 2009 (hereinafter "D/R Report"). I have also reviewed the "Errata" of William H. Desvousges, Ph.D. and Gordon C. Rausser, Ph.D., produced by Defendants on June 30, 2009 (hereinafter "Errata"). I and my staff have reviewed the documents produced by Defendants on July 6, 2009 relating to the Errata.

6. For ease of reference, I refer to Dr. Desvousges and Dr. Rausser throughout this Declaration as "D/R."

7. The results of the statistical model as first provided by D/R, which form the basis of their original opinions in the D/R Report, have fundamentally changed given their data additions and corrections in the Errata. D/R's new results do not support their original opinions.

A. D/R's new model of lake recreation reflected in the Errata estimates a positive and significant relationship between water clarity and visitation. In the original D/R Report, they found no statistical relationship between water clarity and visitation and relied on that finding as the basis of their opinion, as follows:

> To evaluate the potential effect of water quality on visitation at COE lakes, we used the average water clarity of the lake. In other specifications, we used the minimum and maximum water clarity measurements for the season. **Our analysis indicates that none**

> **of the indicators for water clarity were found to significantly predict visitation.** Thus, aggregate visitation for the COE sites for the years 2000 to 2007 **was not impacted by variation in water quality,** as measured by water clarity levels. The model results also show that there is no significant time trend in visitation across the sites. **These results provide further support for our conclusion that recreation at Tenkiller Lake has not been impacted by changes in water quality** and that recreators have not experienced any potential losses from alleged injuries attributable to increased phosphorous loadings from the application of poultry litter.

(D/R Report, p. 18 (emphasis added).)

Therefore, their original opinions cannot be supported by their new findings.

B. In the Errata, D/R misrepresent the information provided in the new lake recreation model. D/R state, "The revised model results also show that there is no significant time trend in visitation across sites. These results provide further support for our conclusion that recreation at Tenkiller Lake has not been impacted by reductions in water clarity..." (Errata, pp. 2-3.) To force this result, D/R combined attendance at all the lakes included in their model, rather than using individual lake attendance. Therefore, their time trend coefficients represent an aggregate trend in visitation across all lakes and cannot be used to deduce specific conclusions about the relationship between visitation and lake quality over time at Tenkiller Lake. In their original D/R Report, D/R argued that Tenkiller Lake had significant time trend:

> The trend in visitation for the top eightmost visited COE sites in Oklahoma has been fairly stable with exception of Tenkiller Lake. Tenkiller Lake has seen a rise in visitation from 818,522 in 2000 to 2,924,047 in 2007, nearly a 300 percent increase.

(D/R Report, p. 14.)

8. D/R make hundreds of changes to their original data set to estimate their new model. These changes are not documented in their Errata,[1] and they do not cite their new data documentation report in their Errata.

9. The D/R Errata and July 6 document production do not provide sufficient information to replicate D/R's results. They do not provide the methodology to replicate crucial data calculations, as described below.

   A. D/R do not provide the actual data file used to estimate their new model that they report in the Errata. I and my staff, at my direction and under my supervision, have tried to recreate this data file using documentation of the hundreds of changes they made to their data. We are unable to replicate the data and the model output.

   B. D/R do not document a change to the visitation data for Tenkiller Lake in 2007, despite Desvousges having admitted this error in deposition. (The original data had 294,047; 2,924,047 should be in their Errata data set.) Moreover, the source for visitation data cited by D/R in their Errata—"Visits FY07to00.xls" (Table 1, p.1) has not been provided.

   C. Over 50% of the visitation data observations used by D/R in their revised model do not match the visitation data from the Army Corps of Engineers ("ACOE" or "COE"). D/R state they collected visitation data from the COE Institute for Water Resources. (D/R Report, p. 17.) D/R do not provide specific information about how the data were obtained. Stratus contacted the COE Institute for Water Resources headquarters (contact information is accessible here:

[1] The documents produced on July 6, 2009 include some discussion of the changes made, but not all.

http://www.iwr.usace.army.mil/contactus.cfm). Stratus was directed to the following website,

http://www.vtn.iwr.usace.army.mil/recreation/state.asp?state=OK. From here, a user can obtain information about a given COE lake using the drop-down menu on the webpage. The data found here are for 2006, but data are not available for other years. Therefore, lake visitation data had to be formally requested through Stanley Spirlock at the ACOE's Tulsa District office. These data were compared with the data provided by D/R and over 50% of the data points did not match.

D. D/R replace 10 of their original 160 *meanclarity* data points with new data. These changes are not documented in their Errata, but do appear in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf."

E. D/R replace 61 observations in the *lakelevel* variable with new data. These changes are not documented in the Errata, but appear in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf" and "DesVousges-Rausser013740-Rainfall and Lake Levels.pdf." The average *lakelevel* for the 160 observations included in D/R's original data is changed drastically from 1.46 to 0.83 in their Errata data.

F. In addition to adding 8 new *campsites* observations for Broken Bow Lake, D/R change the values 88 of their original 160 *campsites* data points. For these observations, the average changes from 217.4 to 265.6. These changes are not documented in the Errata, but do appear in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf." D/R still have errors in their data. Table 3 on page 4 of "DesVousges-Rausser013698-

Final%20Data%20Documentation.pdf." shows Great Salt Plains Lake having a "missing" value for *campsites*. In their original data file turned over with their original report, "DesVousges-Rausser002862-Lake data.xls," D/R document this value as 86. Therefore, this value is not missing and should have been included in their analysis.

G. In addition to adding 8 new *boatramps* observations for Broken Bow Lake, D/R change the values for 88 of their original 160 *boatramps* data points. For these observations, the average values changes from 5.8 to 5.15. These changes are not documented in the Errata, but do appear in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf." D/R provide incomplete source data for *boatramps* in "DesVousges-Rausser014289-Recreation Facilities.pdf," although the rest can be found on a website cited on page 4 of "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf."

H. D/R's *boatramps* variable does not, contrary to their statements, represent the actual number of boat ramps at the lakes. For example, D/R state that there are 10 boat ramps at Tenkiller Lake. In fact, from data provided by the Tulsa District Army Corp of Engineers, there are 34 boat ramps at Tenkiller Lake. (Stanley Spirlock of the ACOE provided facilities information in "OMBIL Facilities 5-06-09 (version 1).xls.")

I. D/R create the *shoreacres* variable in their model by taking the ratio of lake size (in acres) to shoreline miles. D/R do not make changes to shoreline miles data, but they do change 8 lake size data points, as documented in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf." These changes are not

documented in the Errata. D/R cite "DesVousges-Rausser014292-Shoreline and Acres Information.pdf" as their source for these data. Comparing the data from this new source document with their original data, the new source data does not match their original data for 7 of their 21 lakes, or 56 out of 168 observations. For example, for Fort Supply Lake, D/R's new data source reports lake surface acres as 5,730, but in D/R's original data, they reported 1,800. D/R do not document or state whether they made these 56 data entry error corrections or not.

J. D/R make 16 changes to their *distance* variable, as documented in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf." These changes are not documented in the Errata. D/R report their distance variable data collection in "DesVousges-Rausser013676-Distance.pdf." There are still at least 8 data mistakes apparent from a comparison of this new data and the data provided with their original report. In "DesVousges-Rausser013676-Distance.pdf," D/R list the distance from Tulsa to Pine Creek Lake as 178 miles. In their original data, they listed this distance as 136 miles. This would affect 8 of their data observations. D/R do not document or state whether they made these 8 data entry error corrections or not.

K. D/R change 8 entries in their *stateparks* variable. This is not documented in their Errata, but does appear in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf."

L. D/R change 8 entries in their *lakedepth* variable. The details of their changes are not made apparent, but in "DesVousges-Rausser013698-Final%20Data%20Documentation.pdf," they indicate, "Missing data for lake

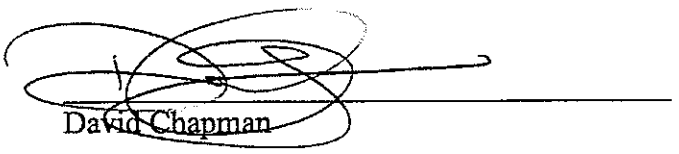
depth had been miscoded as zero and now has been revised to reflect actual lake depth" (p. 6). Because Fort Supply Lake is the only lake from their original data set coded as 0, we assumed these 8 observations are the only ones changed. These are changed from 0 feet to 2004 feet. These changes are not documented in their Errata.

M. Overall, D/R changed at least 288 data points and added an additional 16 data points not provided in their original data. Even with these changes and additions to their original data, they still have errors in their data that make their findings wrong and unreliable.

10. Contrary to professional and academic standards, D/R do not provide information necessary to reconstruct key variables in their models. D/R do not follow standard professional procedures to document how they developed their "lake characteristics." Their "lake characteristic data" cannot be verified or replicated.

11. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on July 17, 2009



David Chapman